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L5: Entry 1 of 1 File: USPT Dec 11, 2001

US-PAT-NO: 6330308
DOCUMENT-IDENTIFIER: US 6330308 B1

TITLE: Voice mail system for obtaining forwarding number information from directory assistance systems having speech recognition

DATE-ISSUED: December 11, 2001

INT-CL: [07] H04 M 1/64

US-CL-ISSUED: 379/88.04; 379/88.18, 379/88.23, 379/201
US-CL-CURRENT: 379/88.04; 379/218.01, 379/88.18, 379/88.23

FIELD-OF-SEARCH: 379/88.01, 379/88.04, 379/88.11, 379/88.16, 379/88.17, 379/88.22, 379/88.23, 379/88.25, 379/88.27, 379/88.28, 379/201, 379/219, 379/229, 704/270, 704/275

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Detailed Description Text (9):
The ADAS 30 also includes a controller 36 for controlling operations of the ADAS 30. In particular, the controller 36 controls the switching of the crossconnect switch 32 to route incoming calls to an available VRU 34. The ADAS 30 also includes a speech recognition unit 38, a directory database 40 storing telephone numbers for a group of subscribers served in a prescribed region of the telephone network, a local data network 39 for transporting voice speech samples between the VRUs 34 and the speech recognition unit 38, and control and query messages to and from the controller 36, and a data network interface 42 to enable sending and receiving of data messages across a data network, for example the common channel interoffice signaling network 12. The ADAS 30 may also include a second database 41 storing routing information for other remote directory assistance systems accessible by the ADAS 30, identified by directory index entries. Alternatively, the databases 40 and 41 may be integrated into a single database.

Detailed Description Text (19):
Octets 2-11 form a routing label. Octet 12 contains a signaling link selection (SLS) byte used to select specific links and/or determine the extent to which the network can select specific links to achieve load sharing. Octet 13 contains a Customer Identification Code (CIC) which typically is used to select an interexchange carrier. Octet 14 contains a message type indicator, and octets 15-N contain the actual message, in the form of fixed parameters, mandatory parameters and optional parameters. The length of the mandatory parameters field and the optional parameters field are variable. There would be 16 other bits that have Cyclic Redundancy Codes (CRCs) in them and another flag which would constitute the end of the SS7 message (and typically the start of the next message). CRCs constitute a further error detection code which is a level 1 function in the protocol.

Current US Cross Reference Classification (2):
379/88.18

CLAIMS:

14. A telecommunications network comprising:

a central office switching system configured for receiving a line-sided connection with a calling party;

an automated directory assistance system comprising a speech recognition unit for identifying a directory listing based on supplied speech samples, the automated directory assistance system retrieving a stored telephone number for the identified directory listing; and

a voice mail system configured for recording a called party identity for a recorded message from the calling party via the line-sided connection, the voice mail system supplying the speech samples to the automated directory assistance system based on the recorded called party identity and obtaining the corresponding stored telephone

number for transmission of the recorded message,

wherein the automated directory assistance system includes:

(a) a first database for storing a plurality of stored telephone numbers for respective directory listings; and

(b) a second database for storing routing information for respective directory index entries, the automated directory assistance system accessing the second database in response to determining an absence of the identified directory listing in the first database and based on a directory index entry recorded by the voice mail system.

15. A telecommunications network comprising:

a central office switching system configured for receiving a line-sided connection with a calling party;

an automated directory assistance system comprising a speech recognition unit for identifying a directory listing based on supplied speech samples, the automated directory assistance system retrieving a stored telephone number for the identified directory listing;

a voice mail system configured for recording a called party identity for a recorded message from the calling party via the line-sided connection, the voice mail system supplying the speech samples to the automated directory assistance system based on the recorded called party identity and obtaining the corresponding stored telephone number for transmission of the recorded message,

wherein the automated directory assistance system includes:

(a) a first database for storing a plurality of stored telephone numbers for respective directory listings; and

(b) a second database for storing routing information for respective directory index entries, the automated directory assistance system accessing the second database in response to determining an absence of the identified directory listing in the first database and based on a directory index entry recorded by the voice mail system;

a second directory assistance system, addressable by the corresponding routing information, comprising a second speech recognition unit for identifying said directory listing in response to reception of said speech samples, and a directory database for outputting the stored telephone number for the identified directory listing; and

a data network for supplying the speech samples and the stored telephone number to and from the second directory assistance system, respectively, based on the routing information.

23. The method of claim 21, wherein the retrieving step comprises:

accessing a first database in the automated directory assistance system to determine a presence of the stored telephone number for the destination party;

if the first database does not store said stored telephone number for the destination party:

(1) recording a directory identifier corresponding to the destination party from the calling party;

(2) identifying the directory identifier by the voice response unit;

(3) accessing a second database by the automated directory assistance system via a data network based on a directory identifier; and

(4) obtaining the telephone number from the second database to the automated

directory assistance system.

31. A method in a switched communications network, the method comprising:

connecting a calling party in a first connection to an originating voice mail system serving the calling party and configured for storing a recorded message associated with the calling party;

receiving a called party identity, spoken by the calling party, that specifies a destination party for the recorded message;

processing speech samples spoken by the calling party to identify the called party identity in an automated directory assistance system;

retrieving a telephone number corresponding to the destination party in response to identification thereof using a second connection between the originating voice mail system and the automated directory assistance system while maintaining the first connection, wherein the retrieving step comprises accessing a first database in the automated directory assistance system to determine a presence of the stored telephone number for the destination party, and if the first database does not store said stored telephone number for the destination party:

(1) recording a directory identifier corresponding to the destination party from the calling party;

(2) identifying the directory identifier by a speech recognition unit;

(3) accessing a second database via a data network based on a directory identifier; and

(4) obtaining the telephone number from the second database to the automated directory assistance system; and

transmitting the recorded message to a destination voice mailbox serving the destination party based on the retrieved telephone number.